

SAFETY DATA SHEET**512553 BIRCH LEAF GIVCO 166/4/20/3**

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1. IDENTIFICATION

Product Description: BIRCH LEAF GIVCO 166/4/20/3
CAS # MIXTURE
Other means of identification
Vigon Item # 512553
Recommended use Concentrated aromatic ingredient which may be used fragrance compounds according to legal and IFRA guidelines.
Recommended restrictions For Manufacturing Use Only

Company

Vigon International, LLC
127 Airport Road
E. Stroudsburg, PA 18301
For information call: 570-476-6300
Web Site: www.vigon.com

24 Hour Emergency Response Information

INFOTRAC (ACCT# 78928);
1-800-535-5053 WITHIN THE U.S.A.
1-352-323-3500 OUTSIDE THE U.S.A.

Manufacturer/Importer/Supplier/Distributor information**Manufacturer**

Company name	Vigon International, LLC	
Address	127 Airport Road E. Stroudsburg, PA 18301 United States	
Telephone	For information call:	570-476-6300
Website	www.vigon.com	
E-mail	regulatory@vigon.com	
Emergency phone number	INFOTRAC	(ACCT# 78928);
	1-800-535-5053	WITHIN THE U.S.A.
	1-352-323-3500	OUTSIDE THE U.S.A.

2. HAZARD(S) IDENTIFICATION

Physical hazards	Flammable liquids	Category 4
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements**Signal word**

Danger

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Hazard statement

Combustible liquid. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing mist/vapors. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear eye protection/face protection. Wear protective gloves.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish. Collect spillage.

Storage

Store in a well-ventilated place.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

44.35% of the mixture consists of component(s) of unknown acute dermal toxicity. 56% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures

Chemical name	Common name and synonyms	CAS number	%
EUGENOL	5-ALLYL-2-HYDROXY-ANISOL 2-METHOXY-4-(2-PROPENYL)-PHENOL 1-HYDROXY-2-METHOXY-4-ALLYLBENZENE 2-METHOXY-4-ALLYLPHENOL	97-53-0	10 - < 20
GERANIOL	3,7-DIMETHYL-2,6-OCTADIEN-1-OL (2E)-3,7- dimethylocta-2,6-dien-1-ol LEMONOL GERANYL ALCOHOL	106-24-1	10 - < 20
(2- methyl- 6-methylideneoct-7-en-2-yl) acetate	bergamot acetoacetate	69103-01-1	5 - < 10
CITRONELLOL	3,7-DIMETHYL-6-OCTEN-1-OL 6-Octen-1-ol, 3,7-dimethyl- 2,6- dimethyl-2-octen-8-ol	106-22-9	5 - < 10
GUAIACWOOD ACETATE	guaiaacwood oil acetylated	61789-17-1	5 - < 10
HEXENOL CIS-3	(Z)-3-Hexen-1-ol CIS-3-HEXENOL 3-HEXENOL-CIS	928-96-1	5 - < 10
BENZYL ALCOHOL	ALPHA-HYDROXYTOLUENE PHENYL CARBINOL PHENYLMETHANOL ALPHA-TOLUENOL Benzenemethanol phenylmethanol Benzyl carbinol	100-51-6	3 - < 5

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Chemical name	Common name and synonyms	CAS number	%
CITRAL	2,6- OCTADIENAL, 3,7-DIMETHYL- 2,6- dimethyl octadien-2,6-al-8 3,7-DIMETHYL-2,6-OCTADIENAL 3,7- dimethylocta-2,6-dienal	5392-40-5	3 - < 5
LINALOOL	2,6-DIMETHYL-2,7-OCTADIENE-6-OL 1,6-Octadien-3-ol, 3,7-dimethyl- 3,7-Dimethylocta-1,6-dien-3-ol LINALYL ALCOHOL	78-70-6	3 - < 5
NEROL		106-25-2	3 - < 5
PHENYL ETHYL ALCOHOL	BENZYL CARBINOL 2-Phenylethanol	60-12-8	3 - < 5
UNDECAVERTOL	(E)-4- methyldec-3-en-5-ol 3-Decen-5-ol, 4-methyl- 4-Methyl-3-decen-5-ol	81782-77-6	3 - < 5
1-METHYL-4-(4-METHYLPENTYL)- 3-CYCLOHEXENE CARBALDEHYDE	3-Cyclohexene-1-carboxaldehyde, 1-methyl-4-(4-methylpentyl)- 1-FORMYL-1-METHYL-4-(4-METHYL-PE NTYL)-3-CYCLOHEXENE 1- methyl-4-(4-methylpentyl)cyclohex-3-ene- 1-carbaldehyde	66327-54-6	1 - < 3
2,6,10-Trimethylundec-9-enal	trimethyl undecylenic aldehyde	141-13-9	1 - < 3
5-METHYL-3-HEPTANONE OXIME	N-(5- methylheptan-3-ylidene)hydroxylamine 3-Heptanone, 5-methyl-, oxime ethyl 2-methyl butyl ketoxime	22457-23-4	1 - < 3
CARVENE	DIPENTENE (+)-P-MENTHA-1,8-DIENE (R)-(+)-Limonene (R)-4-Isopropenyl-1-methyl-1-cyclohexen e 1- methyl-4-prop-1-en-2-ylcyclohexene	5989-27-5	1 - < 3
EUCALYPTUS OIL		8000-48-4	1 - < 3
HEXENYL CIS-3 BENZOATE	[(Z)-hex-3-enyl] benzoate (3Z)- hex-3-en-1-yl benzoate	25152-85-6	1 - < 3
2,4-DIMETHYLCYCLOHEX-3-ENE- 1-CARBALDEHYDE	4-formyl-1,3-dimethylcyclohex-1-ene 2,4-DIMETHYL-3-CYCLOHEXEN-1- CARBOXALDEHYDE 3-Cyclohexene-1-carboxaldehyde, 2,4-dimethyl- DIMETHYLCYCLOHEX-3-ENE-1- CARBALDEHYDE (MIXED ISOMERS)	68039-49-6	< 1
CITRONELLAL	3,7-dimethyloct-6-enal 2,3- dihydrocitral 6-Octenal, 3,7-dimethyl- RHODINAL	106-23-0	< 1

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Chemical name	Common name and synonyms	CAS number	%
CREOSOL	2- methoxy-4-methylphenol 3- methoxy-4-hydroxytoluene para- creosol p- methylguaiacol	93-51-6	< 1
PINENE BETA	7,7-dimethyl-4-methylidenebicyclo[3.1.1] heptane (1)-6,6- dimethyl-2-methylene bicyclo(3.1.1) heptane	127-91-3	< 1
CARENE DELTA	3,7,7-trimethyl bicyclo(4.1.0)hept-3-ene 3,7,7-trimethyl bicyclohept-3-ene 3,7,7-trimethyl-3-norcarene	13466-78-9	< 0.2
Other components below reportable levels			5 - < 10

4. FIRST-AID MEASURES

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.
Eye contact	Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.
Ingestion	Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.
Most important symptoms/effects, acute and delayed	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
Indication of immediate medical attention and special treatment needed	Not available.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Water spray, fog, CO2, dry chemical, or alcohol resistant foam.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.



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Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Specific methods

Use water spray to cool unopened containers.

General fire hazards

Static charges generated by emptying package in or near flammable vapor may cause flash fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

Large Spills: Dike the spilled material, where this is possible. Collect and dispose of spillage as indicated in section 13 of the SDS.

Absorb in vermiculite, dry sand or earth and place into containers. Prevent product from entering drains.

Small Spills: Clean surface thoroughly to remove residual contamination. Wipe up with absorbent material (e.g. cloth, fleece).

Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Stop the flow of material, if this is without risk. Cover with plastic sheet to prevent spreading.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid release to the environment. Retain and dispose of contaminated wash water. Contact local authorities in case of spillage to drain/aquatic environment.

7. HANDLING AND STORAGE

Precautions for safe handling

Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components

Type

Value

Form

CARENE DELTA (CAS
13466-78-9)

TWA

20 ppm



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US. ACGIH Threshold Limit Values

Components	Type	Value	Form
CITRAL (CAS 5392-40-5)	TWA	5 ppm	Inhalable fraction and vapor.
PINENE BETA (CAS 127-91-3)	TWA	20 ppm	

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
BENZYL ALCOHOL (CAS 100-51-6)	TWA	44.2 mg/m ³ 10 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

CITRAL (CAS 5392-40-5)

Danger of cutaneous absorption

Appropriate engineering controls Use explosion-proof ventilation equipment to stay below exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Face shield is recommended.

Skin protection

Hand protection

Chemical resistant gloves.

Other

Use of an impervious apron is recommended.

Respiratory protection

Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Refer to Spec Sheet

Physical state

Liquid.

Form

Liquid.

Color

Refer to Spec Sheet

Odor Characteristic.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

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Initial boiling point and boiling range	Not available.
Flash point	167.0 °F (75.0 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Molecular formula	Not applicable
Oxidizing properties	Not oxidizing.
Specific gravity	0.92 at 25 °C

10. STABILITY AND REACTIVITY

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Alkaline metals.
Hazardous decomposition products	No hazardous decomposition products if stored and handled as indicated.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	Expected to be a low ingestion hazard.

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Symptoms related to the physical, chemical and toxicological characteristics

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity Not known.

Components	Species	Test Results
(2- methyl- 6-methylideneoct- 7-en-2-yl) acetate (CAS 69103-01-1)		
Presumed Non-Toxic		
<i>Dermal</i>		
LD50	Rabbit	>= 5000 mg/kg
<i>Oral</i>		
LD50	Rat	>= 5000 mg/kg
1-METHYL-4-(4-METHYLPENTYL)-3-CYCLOHEXENE CARBALDEHYDE (CAS 66327-54-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6)		
Acute		
<i>Oral</i>		
LD50	Rat	3900 mg/kg
2,6,10-Trimethylundec-9-enal (CAS 141-13-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
5-METHYL-3-HEPTANONE OXIME (CAS 22457-23-4)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	3800 mg/kg
<i>Oral</i>		
LD50	Rat	3500 mg/kg
BENZYL ALCOHOL (CAS 100-51-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	2500 mg/kg

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Components	Species	Test Results
<i>Inhalation</i>		
LC50	Rat	11 mg/l, 8 Hours
<i>Oral</i>		
LD50	Mouse	1620 mg/kg
CARENE DELTA (CAS 13466-78-9)		
Acute		
<i>Oral</i>		
LD50	Rat	4800 mg/kg
CARVENE (CAS 5989-27-5)		
Acute		
<i>Oral</i>		
LD50	Rat	4400 mg/kg
CITRAL (CAS 5392-40-5)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	2250 mg/kg
CITRONELLAL (CAS 106-23-0)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2500 mg/kg
<i>Oral</i>		
LD50	Rat	2420 mg/kg
CITRONELLOL (CAS 106-22-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	2650 mg/kg
<i>Oral</i>		
LD50	Rat	3450 mg/kg
CREOSOL (CAS 93-51-6)		
Acute		
<i>Oral</i>		
LD50	Rat	623 mg/kg
EUCALYPTUS OIL (CAS 8000-48-4)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	4400 mg/kg

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Components	Species	Test Results
EUGENOL (CAS 97-53-0)		
Acute		
<i>Dermal</i>		
LCL0	Rat	5000 mg/kg subcutaneous
<i>Inhalation</i>		
LC50	Rat	2580 mg/m ³ , 4 hours ARTODN 62,381,1988
GUAIACWOOD ACETATE (CAS 61789-17-1)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
HEXENYL CIS-3 BENZOATE (CAS 25152-85-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
LINALOOL (CAS 78-70-6)		
Acute		
<i>Oral</i>		
LD50	Rat	2790 mg/kg
NEROL (CAS 106-25-2)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	4500 mg/kg
PHENYL ETHYL ALCOHOL (CAS 60-12-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	2500 mg/kg
<i>Oral</i>		
LD50	Rat	1610 mg/kg

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Components	Species	Test Results
UNDECAVERTOL (CAS 81782-77-6)		
Acute		
<i>Oral</i>		
LD50	Rat	> 8000 mg/kg OECD Test Guideline 104
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/eye irritation	Causes serious eye damage.	
Respiratory or skin sensitization		
ACGIH sensitization		
CITRAL, INHALABLE FRACTION AND VAPOR (CAS 5392-40-5)		Dermal sensitization
TURPENTINE AND SELECTED MONOTERPENES (CAS 127-91-3)		Dermal sensitization
TURPENTINE AND SELECTED MONOTERPENES (CAS 13466-78-9)		Dermal sensitization
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	May cause an allergic skin reaction.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity		
IARC Monographs. Overall Evaluation of Carcinogenicity		
CARVENE (CAS 5989-27-5)		3 Not classifiable as to carcinogenicity to humans.
EUGENOL (CAS 97-53-0)		3 Not classifiable as to carcinogenicity to humans.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not listed.		
US. National Toxicology Program (NTP) Report on Carcinogens		
Not listed.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful.	

12. ECOLOGICAL INFORMATION

Ecotoxicity Toxic to aquatic life with long lasting effects.

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Components		Species	Test Results
2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6)			
Aquatic			
<i>Acute</i>			
Algae	EC50	Green algae (Desmodesmus subspicatus)	31, 72 hours (based on growth rate - nominal concentration - OECD 201)
Crustacea	EC50	Daphnia magna	22.4, 48 hours (measured concentration - similar to OECD 202)
Fish	LC50	Oncorhynchus mykiss (reported as Salmo gairdneri)	7.5, 96 hours (measured concentration - OECD 203)
BENZYL ALCOHOL (CAS 100-51-6)			
Aquatic			
<i>Acute</i>			
Fish	LC50	Inland silverside (Menidia beryllina)	15, 96 hours
CARENE DELTA (CAS 13466-78-9)			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	0.797, 48 hours (measured concentration - OECD 202)
CARVENE (CAS 5989-27-5)			
Aquatic			
Other	EC50	Activated Sludge	3.94
<i>Acute</i>			
Crustacea	EC50	Water flea (Daphnia pulex)	69.6, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	>= 0.619 - <= 0.796 mg/l, 96 hours
		Rainbow trout,donaldson trout (Oncorhynchus mykiss)	35, 4 days
CITRAL (CAS 5392-40-5)			
<i>Acute</i>			
Other	EC20	Activated sludge of a predominantly domestic sewage	68, 0.5 hours OECD Guideline 209 aquatic
Aquatic			
Other	EC50	Bacterium	2100, 0.5 hours DIN 38412 Part 27 (draft) aquatic - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

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Components		Species	Test Results
<i>Acute</i>			
Algae	EC50	Green algae (<i>Chlamydomonas variabilis</i>)	103.8, 72 hours DIN 38412 Part 9 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
Crustacea	EC50	Daphnia magna	7, 48 hours Directive 79/831/EEC static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
Fish	LC50	Ide, silver or golden orfe (<i>Leuciscus idus</i>)	> 4.6 - < 10 mg/l, 96 hours DIN 38415 Part 15 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
CITRONELLOL (CAS 106-22-9)			
Aquatic			
<i>Acute</i>			
Algae	EC50	Algae	2.4, 72 hours
Crustacea	EC50	Daphnia	17, 48 hours
Fish	LC50	Leuciscus idus (Golden orfe)	> 10 - < 22 mg/l, 96 hours
EUGENOL (CAS 97-53-0)			
Other	LD50	Bird	> 316 mg/kg Schafer, 1983
Aquatic			
Crustacea	EC50	Daphnia magna	1.13, 48 hours
	LD50	Invertebrates (Invertebrates)	0.012 Lee, 1997
Fish	LC50	Danio rerio	13, 96 hours
		Oncorhynchus mykiss	60.8, 96 hours
GERANIOL (CAS 106-24-1)			
Other	EC50	Activated sludge of a predominantly domestic sewage	70, 0.5 hours
Aquatic			
Algae	EC50	Green algae (<i>Desmodesmus subspicatus</i>)	13.1, 72 hours
Crustacea	EC50	Daphnia magna	10.8, 48 hours

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Components		Species	Test Results
Fish	LC50	Danio rerio	22, 96 hours
<i>Acute</i>			
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss)	$\geq 3.3 - \leq 4.1$ mg/l, 96 hours
HEXENOL CIS-3 (CAS 928-96-1)			
Aquatic			
<i>Acute</i>			
Fish	LC50	Fathead minnow (Pimephales promelas)	$\geq 352 - \leq 412$ mg/l, 96 hours
LINALOOL (CAS 78-70-6)			
Other	EC10	Activated sludge of a predominantly domestic sewage	> 100 mg/l, 3 hours
Aquatic			
Algae	EC50	Green algae (Chlamydomonas variabilis)	88.3, 96 hours DIN 38412 Part 9 static. The details of the toxic effect related to the nominal concentration.
Crustacea	EC50	Daphnia magna	20, 48 hours DIN 38412 Part 11 static. The details of the toxic effect related to the nominal concentration.
Fish	LC50	Ide, silver or golden orfe (Leuciscus idus)	$> 22 - < 46$ mg/l, 96 hours DIN 38412 Part 15 static. The details of the toxic effect related to the nominal concentration.
	LC50-R	Fish	27.8, 96 hours
NEROL (CAS 106-25-2)			
<i>Acute</i>			
Algae	EC50	Green alga (Pseudokirchneriella subcapitata)	9.54, 72 hours (based on growth rate - nominal concentration - OECD 201 Guideline). 2.15, 72 hours (based on biomass - nominal concentration - OECD 201 Guideline).
Other	EC50	Activated sludge of a predominantly domestic sewage	241, 3 hours (respiration rate - nominal concentration - activated sludge - OECD 209).
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	32.4, 48 hours (nominal concentration - OECD 202 Guideline).
Fish	LC50	Danio rerio	20.3, 96 hours (nominal concentration - OECD 203 Guideline).

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Persistence and degradability

Biodegradability

Percent degradation (Aerobic biodegradation)

GERANIOL

> 90 % OECD 301A (new version)(aerobic), activated sludge, domestic DOC reduction, Readily biodegradable (according to OECD criteria)

Percent degradation (Aerobic biodegradation-ready)

LINALOOL

> 60 - < 70 %, Readily biodegradable (according to OECD criteria).

Result: OECD 301D; EEC 92/69, C4-E (aerobic)

Test Duration: 28 days

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

BENZYL ALCOHOL

1.1

CARVENE

4.232

EUGENOL

2.27

LINALOOL

2.97, (OECD Guideline 107)

PHENYL ETHYL ALCOHOL

1.36

Mobility in soil

No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL CONSIDERATIONS

Disposal instructions

Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

Not established.

Waste from residues / unused products

Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADN

UN number

3082

UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EUGENOL, UNDECAVERTOL)

Transport hazard class(es)

9

Subsidiary class(es)

-

Packing group

III

Environmental hazards

Yes

Labels required

9

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ADR

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EUGENOL, UNDECAVERTOL)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9

RID

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EUGENOL, UNDECAVERTOL)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing Group	III
Environmental Hazards	Yes
Labels required	9
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

BULK

UN number	NA1993
Proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (HEXENOL CIS-3)
Hazard class	Combustible Liquid
Packing group	III
Environmental hazards	
Marine pollutant	No
Packaging exceptions	150
Packaging bulk	242

DOT

NON-BULK

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EUGENOL, UNDECAVERTOL)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Labels required	9

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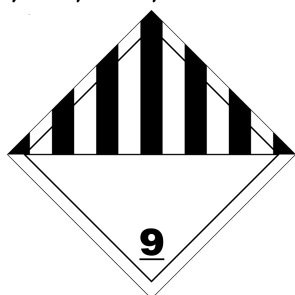
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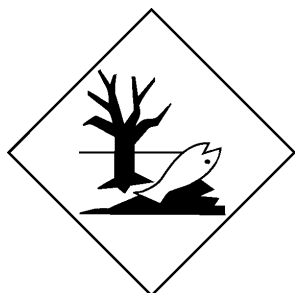
Transport in bulk according
to Annex II of MARPOL
73/78 and the IBC Code

Not applicable. Not established.

ADN; ADR; IMDG; RID



Marine pollutant



15. REGULATORY INFORMATION

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous
chemical

Yes



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Classified hazard categories

Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Issue date

08-27-2021

Revision date

08-27-2021

Version #

01

HMIS® ratings

Health: 3
Flammability: 2
Physical hazard: 0

List of abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
AICIS: Australian Inventory of Industrial Chemicals.
CAS: Chemical Abstract Service.
IARC: International Agency for Research on Cancer.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
MARPOL: International Convention for the Prevention of Pollution from Ships.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TWA: Time Weighted Average.



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